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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/687,230	10/16/2003	Craig A. Kelly	1895-SPL	8063

7590 03/06/2007
Francis A. Cooch, Office of Patent Counsel
The Johns Hopkins University
Applied Physics Laboratory
11100 Johns Hopkins Road
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EXAMINER

KISH, JAMES M

ART UNIT	PAPER NUMBER
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3737

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/06/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/687,230

Applicant(s)

KELLY, CRAIG A.

Examiner

James Kish

Art Unit

3737

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-47 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>2/25/04</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Objections

Claims 16 and 23 are objected to because of the following informalities:

Claim 16 is dependent on itself.

Claim 23 is identical to Claim 1.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meyer (US Patent No. 6,308,098) in view of Sun et al. (US Patent No. 6,811,536). Meyer discloses a process for detecting the physical positions of a human being based on detecting a physiological signal dependent on a sympathetic/parasympathetic nerve system. In an arithmetic stage connected downstream from the calibration unit, the current quotient of the amplitude difference value $\Delta Z = Z_2(t_2) - Z_1(t_1)$ is determined continuously for the respective last impedance signal picked up by $Z(t)$ at these points in time, and a difference $(t_2 - t_1)$ of the points in time is calculated (column 3, lines 50-63).” Meyer further teaches a long-term slope memory, in which the slope values from a large

Art Unit: 3737

number of impedance measurements are stored and a fluctuation curve determination stage, in which the curve of the time variability of their fluctuations is determined for all currently stored slope signals. A frequency analyzer for determination of the spectral power density of the fluctuation curve using a linear model [or a different known correlation or transformation process; column 5, lines 6-9] is downstream from this. An integrator stage for integration of the frequency components within two permanently programmed ranges is connected to the output of the frequency analyzer (column 4, lines 28-56). However, the evaluation of the spectral energy density does not necessarily require development of a relationship from two ranges, but may consider more ranges (column 5, lines 10-13). In the same field of endeavor, Sun teaches the use of Fourier Transformations in the monitoring of the autonomic nervous system. See column 3, line 38 through column 4, line 10. Sun teaches that micro-oscillations in the heart rate variability can generally be divided into a high (HF) and a low (LF) frequency, wherein the low frequency can be subdivided further. Also taught by Sun is a ratio of LF/HF. The autonomic nervous system includes not only the heart, but also contraction of the pulmonary (column 5, lines 8-24). While it is stated that the human frequency ranges comprise HF at 0.15-0.4 Hz and LF at 0.04-0.15 Hz, it is also taught that in some circumstances the high frequency range can spread from 0.5-2.4 Hz (column 9, lines 15-21). Splitting this range into two separate groups would be obvious to one of skill in the art as already disclosed by Sun to further subdivide the low frequency ranges. Sun also teaches to correct for distribution biases (i.e., normalization) for LF and HF values (column 10, lines 16-19). It would have been obvious to one of ordinary

Art Unit: 3737

skill in the art at the time the invention was made to use a Fourier transform, as taught by Sun, in the process of Meyer because Meyer suggests variations for processing, as well as the ability to increase the frequency ranges being sampled when monitoring the autonomic nervous system, which Sun provides for.

Conclusion

Other related prior art:

Gordon et al.	4,862,361
linuma et al.	5,785,654
Chubachi et al.	5,840,028

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Kish whose telephone number is 571-272-5554.

The examiner can normally be reached on 8:30 - 5:00 ~ Mon. - Fri..


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

Art Unit: 3737

you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JMK



Brenda L. Smith
Patent Examiner
Art Unit 3737
USPTO